REMARKS

Reconsideration and allowance of the above identified application is requested in light of the above amendments and the following remarks.

The Present Invention

The claimed invention relates to a longwall support control for controlling the movements of longwall support units **1-18** in the longwall of a mine. In prior art longwall support control systems, a failure in a mining shield control device makes the entire system inoperative. However, the present invention advantageously permits operating the system despite such failure.

Applicants have amended independent Claim 1 and have added new Claims 10 and 11. The invention as defined in the amended independent Claim 1 of the application comprises a plurality of longwall support units **1-18**, a central control system **50**, **51**, and a plurality of mining shield control devices **34** connected to the support units and connected to the control system via a bus line **58**.

Each mining shield control device **34** stores a unique code word and is programmed to be activated to carry out the respective shield functions only when the stored code word is received from the bus line.

A switching element **53**, which is controlled by the central control system, a hand-operated input device, or a neighboring shield control device, is associated with each control device **34** and is normally closed but opens to interrupt the bus line upon the occurrence of a failure in the associated longwall support unit **1-18**.

In the preferred embodiment, as defined in new Claims 10 and 11, the central control system may comprise primary and secondary central control systems **50, 51** connected at the opposite ends of the bus line, note Fig. 3, and each control device **34** includes a right and a left input element **52** which are connected to the bus line and to the switching element **53**. The input elements **52** first check for the presence of the corresponding code word and then processes any operational signals.

Where the primary and secondary central control systems **50, 51** are provided, the shield control devices **34** on both sides of the opened switch can be operated by one of the primary or the secondary system.

The Claim Rejections Under 35 U.S.C. § 103(a)

In the Official Action, the Examiner rejected Claims 1, 2, and 4-9 under 35 U.S.C. § 103(a) as being unpatentable over either U.S. Patent No. 4,146,271 to Ward et al. (the Ward et al. reference) or U.S. Patent No. 5,029,943 to Merriman (the Merriman reference), in view of U.S. Patent No. 6,604,584 to Lerne et al. (the Lerne reference).

The Ward reference discloses a mine roof support system having a remote control unit **22** and plurality of locally mounted units **20**, each associated to one of the roof support units. *See* col. 5, lines 20-27. A multi-core cable **23**, consisting of a plurality of individual cores **25** connects via cable sockets **26**, **27** on each unit to the units **20** of neighboring roof support units and with the remote control **22**. Each of the individual cores **25** of multi-core cable **23** serves another purpose, including an emergency stop line, audio lines, power lines, clock pulses, and lines reserved for transmission from the console to the support units and from the support unit to the control console. *See* col. 5, lines 28-45. However, as can be seen in Fig. 2, all of the individual cores **25** of multi-core cable **23** are connected to different switch elements or function elements of the unit **20**. There are no means for disrupting one single or more than one of the individual cores **25** of the multi-core cable **23**. Rather, the multi-core cable **23** directly connects the one plug **26** on the one side of unit **20** with the other plug **27** on the other side of unit **20**, without a switching element in between, as is the case with the present invention. As a result, and unlike the present invention, the Ward reference does not permit locating and/or isolating a defect in one of the units **20** while continuing operation of the rest of the units.

The Merriman reference discloses a mining machine **11** traveling along a series of roof supports **16**, note col. 3, lines 1-7. Information gathered on the mining machine is transmitted by transmitter **30** of the machine and receiver **32** on each of the roof supports **16**, connected to the control box **27** on each roof support, note col. 4, lines 5-12. The control boxes are electrically connected to each other so that events on one support can be used to control an adjacent support,

note col. 3, lines 65-68. As shown in Fig. 3, the control boxes **27** are connected to each other by one cable. Data received by one control box **27** is then passed along existing links to the face end control unit 28, note col. 4, lines 21-22. However, the Merriman reference is silent with respect to those links and thus does not teach or suggest how the cable fragments between two neighboring control boxes **27** are connected from entrance to exit of each of the control boxes **27**. Moreover, the Merriman reference does not disclose a switching element for interrupting the connection in between. As a result, the Merriman reference does not teach or suggest any means, such as a switching element, for disrupting the cable connecting to neighboring control boxes **27**, or for locating a defect of one of the control boxes **27**, or to isolate a defective one of the control boxes **27** for continuing operation of the rest of the units.

The Lerne reference is cited by the Examiner as teaching a switching means on a bus line. The Lerne reference discloses a perforating system **10** for use in a well **12**. *See* col. 2, lines 8-10. As shown in Fig. 1, the system includes a multi-gun string having a control system that includes multiple control units **14A-14C** that control activation of charges in the string. *See* col. 2, lines 10-13. The control units **14A-14C** are connected to switches **16A-16C** and **18A-18C** and are controllable between on and off positions to allow or halt current flow through one or more cables **20**. *See* col. 2, lines 15-20. However, the switching means taught by the Lerne reference (switches **16A-16C** and **18A-18C**) are controlled by their respective individual control units (control units **14A-14C**) and not by a central control system, a hand-held input device, and/or a neighboring shield control device, a recited by amended independent Claim 1.

In addition, none of the cited references, alone or in combination, teaches or suggests a central control system that comprises a primary and a secondary central control system connected at respective opposite ends of a bus line so that the mining shield control devices are positioned between the primary and secondary control systems along the bus line, as recited by new independent Claim 10.

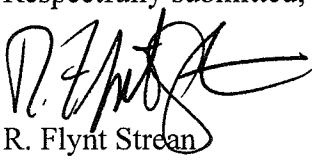
In view of the remarks presented above, it is respectfully submitted that the rejection under 35 U.S.C. § 103(a) of independent Claim 1 with respect to the combination of the Ward, Merriman, and Lerne references is overcome. Since Claims 2-9 depend from independent Claim 1, these dependent claims also avoid the rejection.

Additionally, because none of the cited references, alone or in combination, teaches or suggests the elements of new independent Claim 10, from which new Claim 11 depends, these claims are also patentable over the cited references.

Summary

For the reasons set forth above, it is respectfully submitted that the rejection of independent Claim 1 under Section 103 of the Patent Statute has been overcome. Since Claims 2-9 depend from independent Claim 1, it is respectfully submitted that these claims are also in condition for allowance. Additionally, it is respectfully submitted that new Claims 10 and 11 are patentable over the cited references and thus are also in condition for allowance. Such action is solicited.

Respectfully submitted,



R. Flynt Strean
Registration No. 56,450

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111

ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE ON JANUARY 30, 2008.

LEGAL02/30668477v1